Installation Instructions

Part Number CRECOMZR009E00 and CRECOMZR011E00

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IMPORTANT: There are two different design revision 48/50HG units currently being produced. Because of these differences, there are two different versions of this accessory. This accessory literature covers accessories manufactured for units with design revision 1. Design revision 0 units are not covered in this accessory book.

To determine the design revision, refer to the full unit model number. See Fig. 1 for an example of an HG model number. The design revision number in the model number nomenclature is located in position 13.

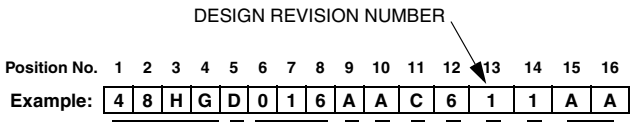

Fig. 1 — Model Number Chart

GENERAL

IMPORTANT: Read these instructions completely before attempting to install the accessory economizer.

The accessory economizer package uses microprocessor-based controls to sequence mechanical cooling with cool outdoor air (free cooling) to satisfy the cooling load and minimize energy consumption. Free cooling can be used alone or in conjunction with mechanical cooling.

The standard economizer uses an outdoor-air temperature sensor to sense outdoor-air temperature. When the outdoor-air temperature is between two configurable ambient temperatures, the economizer is allowed to cool. These temperature configurations are the Economizer High Temperature Lockout (ECL.H) and the Economizer Low Temperature Lockout (ECL.L). The economizer will provide cooling when the outdoor temperature is suitable as defined above by the lockout settings and if there is a cooling demand. In addition, if an outdoor enthalpy sensor accessory has been installed, then the enthalpy reading must also be "low" before economizer cooling can occur.

When free cooling is available, the economizer sequences free cooling with up to three stages of mechanical cooling to maintain comfort in the space. When free cooling is not available, the economizer modulates to an adjustable minimum position to maintain a supply of fresh air entering the building.

Optional barometric relief dampers provide natural building pressurization control. An optional power exhaust system is available for jobs requiring greater relief.

PACKAGE USAGE AND CONTENTS

UNIT SIZE	PART NO.	QTY	CONTENTS
48/50PG20-24, 48/50HG014-024 (CRECOMZR009E00)	50TG500495	1	Damper Assy
	50TG403161	1	Blockoff
	50TG500303	1	Lower Hood Top Panel
	50TG500301	1	Hood Side
	50TG500302	1	Hood Side
	50TG501090	2	Side Filter Guide
	50TG500304	1	Upper Hood Top Panel
	50TG500306	1	Filter Bracket
	50TG501091	1	Filter Retainer Track
	KH03DU350	3	Filter
	50ZZ401127	1	Control Board
	AL56AU130	5	No. 6 Screw
	AL48AM307	10	1/4-in. Screw x 5/8-in.
	AL31AZ308	25	1/4-in. Screw x 3/4-in.
	AS41BZ133	3	Speed Nut
	HY76TB110	5	Wire Tie
	HY76TB125	1	Wire Tie
	50TG402594	1	Harness Assy
	—	1	Seal Strip
48/50PG28, 48/50HG028 (CRECOMZR011E00)	50TG500496	1	Damper Assy
	50TG403163	1	Blockoff
	50TG500303	1	Lower Hood Top Panel
	50TG500301	1	Hood Side
	50TG500302	1	Hood Side
	50TG501090	2	Side Filter Guide
	50TG500304	1	Upper Hood Top Panel
	50TG500306	1	Filter Bracket
	50TG501091	1	Filter Retainer Track
	KH03DU350	3	Filter
	50ZZ401127	1	Control Board
	AL56AU130	5	No. 6 Screw
	AL48AM307	10	1/4-in. Screw x 5/8-in.
	AL31AZ308	22	1/4-in. Screw x 3/4-in.
	AS41BZ133	3	Speed Nut
	HY76TB110	5	Wire Tie
	HY76TB125	1	Wire Tie
	50TG402594	1	Harness Assy
	—	1	Seal Strip

NOTE: If unit is already equipped with an outdoor air hood, hood parts in the accessory will not be used and may be discarded.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguishers available for all brazing operations

IMPORTANT: Do not adjust the damper assembly. The motor and damper have been pre-set and adjusted for proper operation.

INSTALLATION

⚠ WARNING

Turn off unit power and lock out. Electrical shock and personal injury could result.

1. Prepare the unit for installation:
   a. For units with two-position damper installed remove the outdoor air hood. See Fig. 2. Unplug the two-position damper and remove the assembly from the outdoor air opening.
   b. For units with manual damper installed, remove the outdoor air hood and damper assembly.
   c. For units with no outdoor air option installed, remove the outdoor air intake cover. See Fig. 3.
2. Remove the side panel on the return end of the unit to expose the return section of the unit. Save the screws for use later when replacing the panel. The inside of the unit will contain a frame for installing the economizer as shown in Fig. 4.

⚠ CAUTION

Cover the duct opening as a precaution so objects cannot fall into the return duct opening. Be sure to remove the cover when installation is complete.

3. Remove the frame support brackets from both sides of the frame inside the unit. See Fig. 4. Save the screws for use later.
4. Uncrate the economizer assembly. Position the damper assembly so that it will rest on the angle bracket support at the bottom of the economizer frame inside the unit. Slide the economizer into the unit. (See Fig. 5.) Secure the damper assembly to the frame using the $^1/_4$-in. x $^5/_8$-in. screws provided.
5. Open the hinged control box compartment on the unit and remove the control box cover. Save the screws for use later. Be sure not to place sharp objects on any surface that could be damaged.
6. Install the economizer board (P/N 50ZZ401127) into the control box using the no. 6, $^3/_4$-in. screws provided. The economizer board will mount into the pre-drilled holes on the right side flange of the control box as shown in Fig. 6.

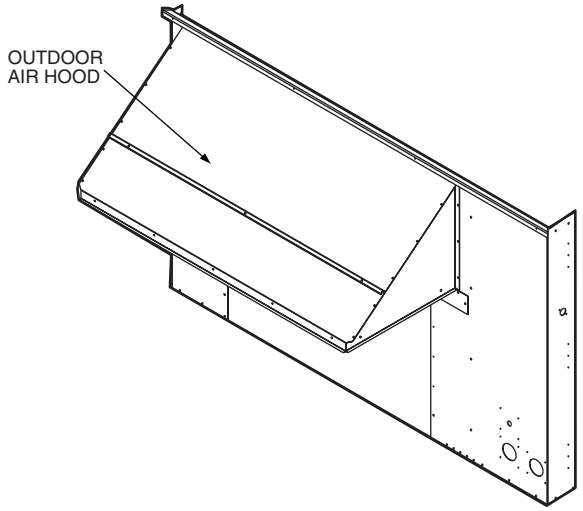

Fig. 2 — Outdoor Air Hood

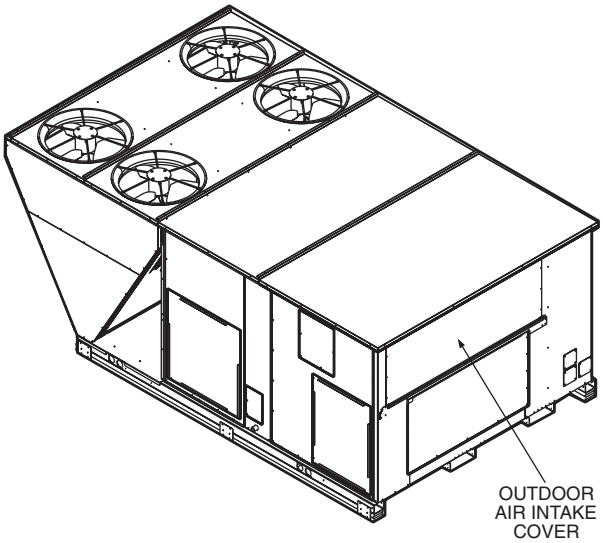

Fig. 3 — Outdoor Air Intake Cover

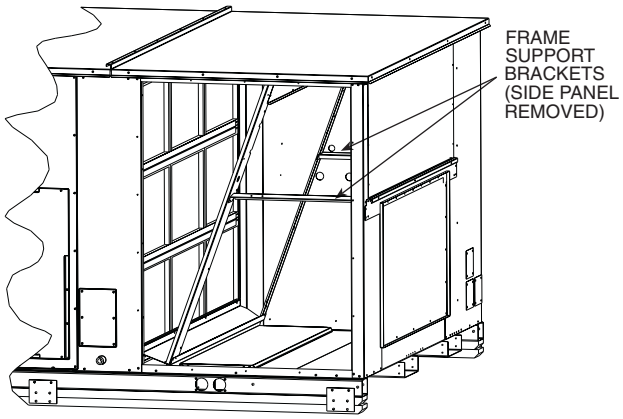

Fig. 4 — Frame Support Brackets (Side Panel Removed)

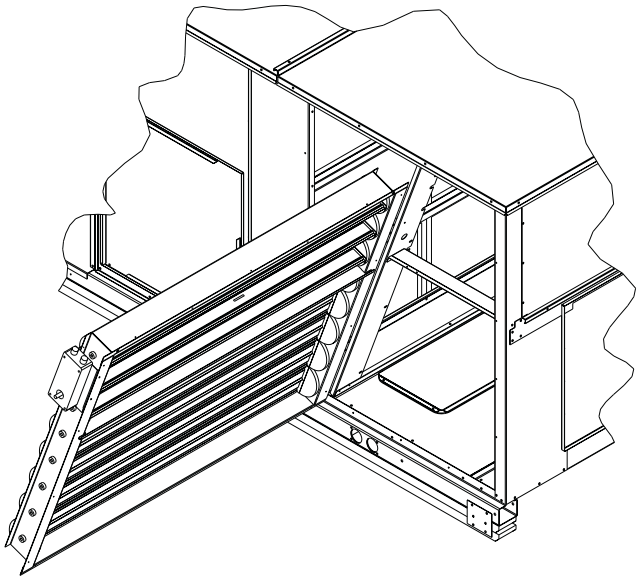

Fig. 5 — Slide Economizer Assembly into Unit

7. Connect the wiring harness (P/N 50TG402594) into the Economizer Control Board (ECB) plugs J1 and J2 and to the Main Base Board plugs J2 and J3. See Fig. 7 and 8. Be sure to connect the plugs with the proper orientation such that the locking tabs capture the plug.
8. Connect the air quality plug marked "TB2-J10" from the wiring harness into the TB-J10 plug on the main base board. Be sure to connect the plug with the proper orientation such that the locking tabs capture the plug.
9. Pass the harness wires through the hole in the control box and into the return air section. Be sure to secure the wires so that they will not interfere with any moving parts.
10. Route the wire harness across the frame support as shown in Fig 9. The motor plug (PL7) should be located at the actuator side of the unit and snaps into the frame support bracket. Be careful not to damage the wires. Route the harness across the back of the top member of the frame as shown and attach to the frame using the wire ties provided.
11. Connect the motor plug to the plug provided with the harness. (See Fig. 9.)
12. Install the insulated partition (block-off panel) by sliding the panel into the unit from the side. The damper side of the panel will slide along the top of the flange of the damper assembly, between the return and outdoor air damper blades. The panel should then be rotated upwards so that the mounting holes align with the holes in the panels at the end of the unit. Once in the correct position, the partition will be horizontal inside the unit as shown in Fig. 10.
13. Secure the partition to the frame using the screws saved from Step 3, at the edges of the partition as shown in Fig. 11.
14. The installation of the damper assembly is now complete.
    Units with Outdoor Air Hood:
    If the unit was equipped with an outdoor air hood, replace the outer unit panels using the screws saved from the earlier steps. Be sure to inspect all panel seals prior to re-assembly and replace any seals that appear damaged.
    Units without Outdoor Air Hood:
    If the unit was not equipped with an outdoor air hood, perform the following procedure to install the hood:
    a. Make sure power supply is off.
    b. Apply seal strip provided to back flange of both hood sides where the hood side connects to the unit back panel. See Fig. 12.
    c. Apply seal strip provided to top flange of both hood sides where hood sides connect to the hood top panels. See Fig. 12.
    d. Install hood sides to the back panels using the screws provided. The sloped flanges point outward. The drip edges of the side panels should face outward as well. The filter guides attach to the hood sides. The flanges should face inward to hold the filters in place. See Fig. 12.
    e. Apply seal strip along the entire length of the bottom flange of the hood top. See Fig. 12.
    f. Install the bottom part of the hood top using 4 screws provided. See Fig. 12.

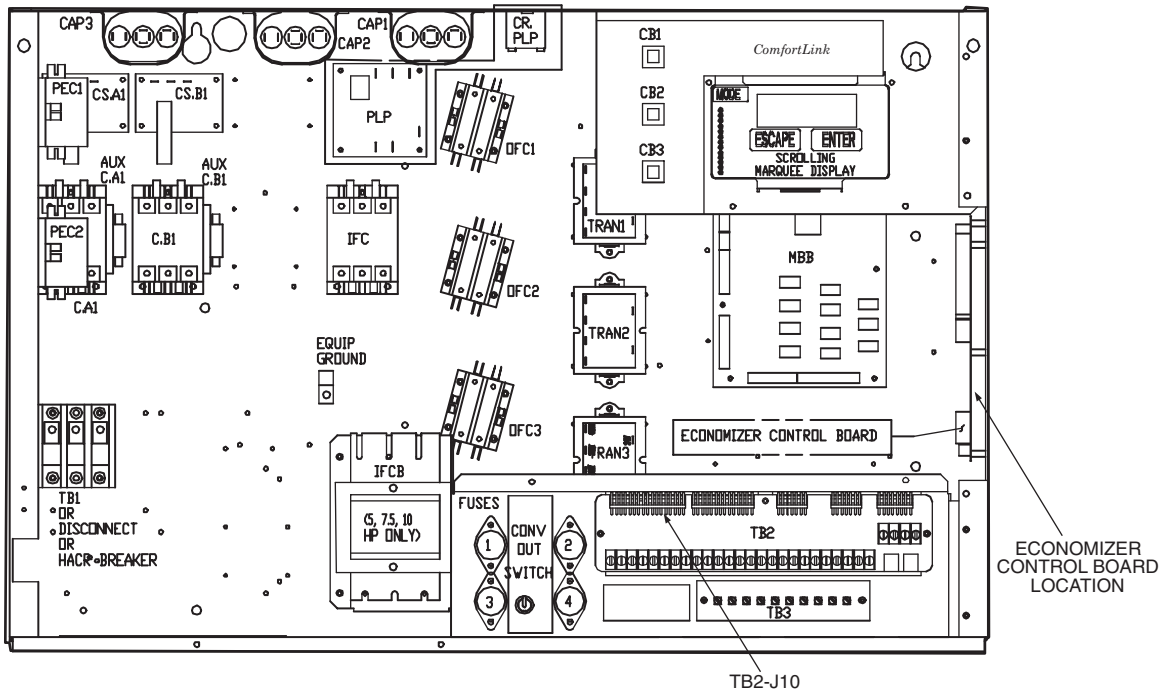

Fig. 6 — Unit Control Box

g. Install the top part of the hood top using the 6 screws removed in Step 2. See Fig. 12.

h. Install the filter retainer track along the bottom edge of the outdoor air hood using 4 screws provided. For filter removal, remove the four screws holding the filter retainer. The filters can then be removed, cleaned, or replaced.

IMPORTANT: If the return duct opening was covered prior to installation, remember to remove the covering so as not to block off the return air to the unit.

15. Secure all wires so that they do not rub any sharp edges or interfere with any moving parts.
16. Replace the control box cover using the screws saved from Step 5. Economizer wiring is shown in Fig. 13.
17. Power can now safely be restored to the unit.
18. Install the three mist eliminating filters supplied into the outdoor air inlet hood.
19. Inspect the unit to make sure all panels are properly replaced and secured to the unit.
20. Configure the unit for use with economizer.

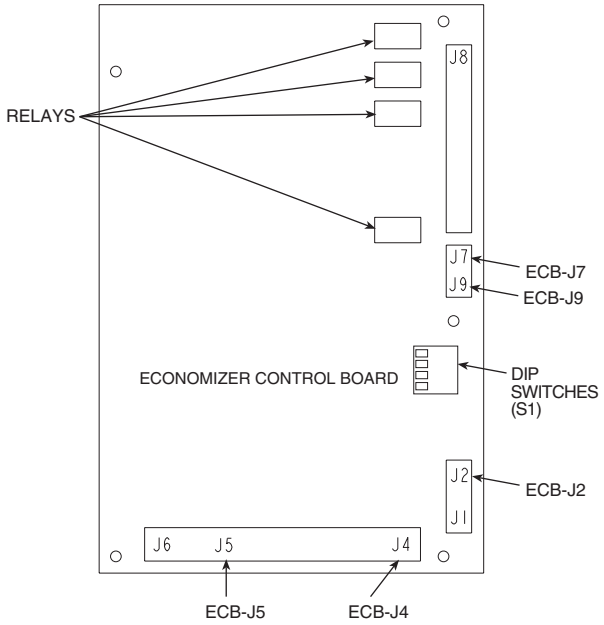

Fig. 7 — Economizer Control Board

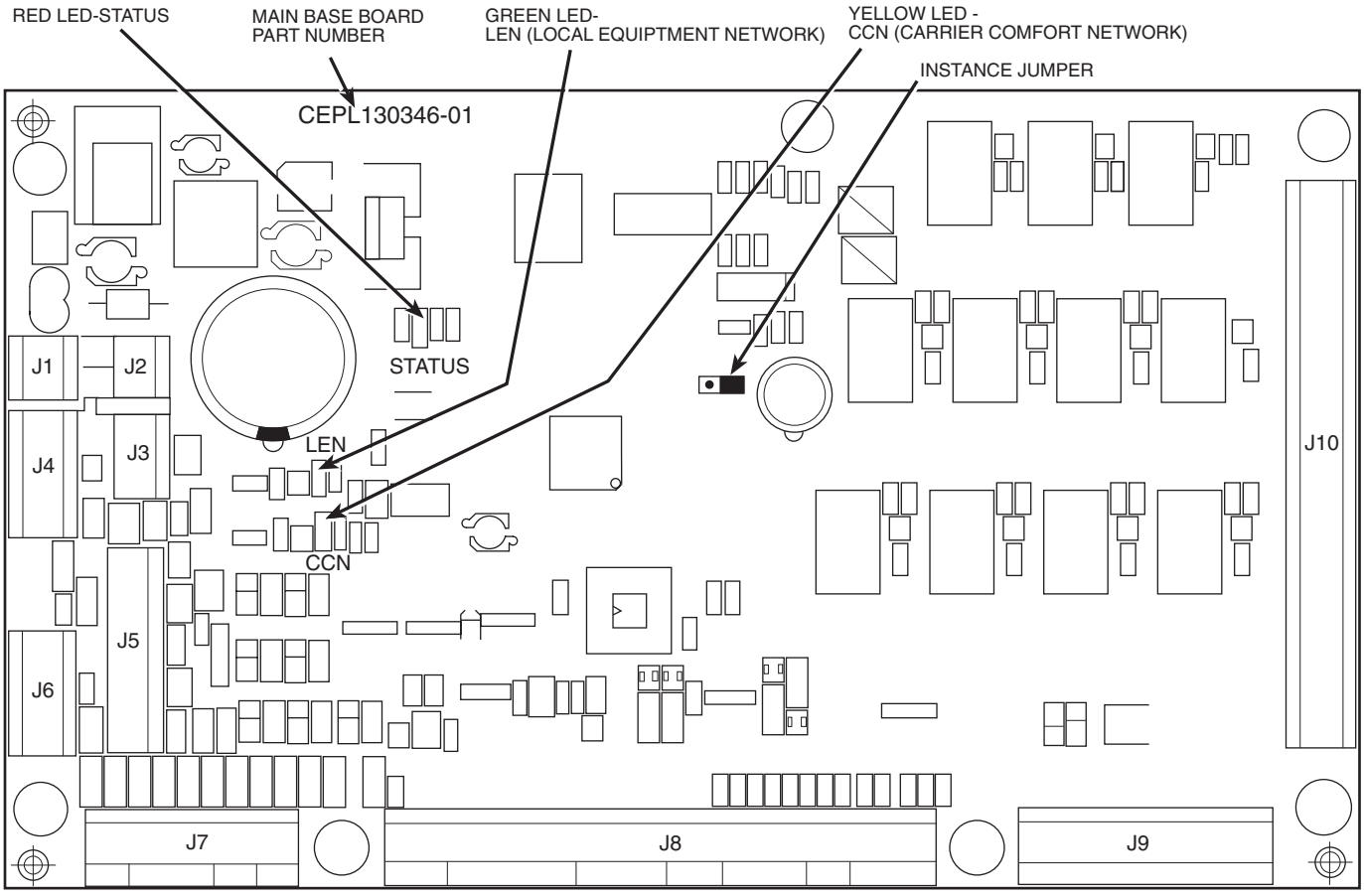

Fig. 8 — Main Base Board

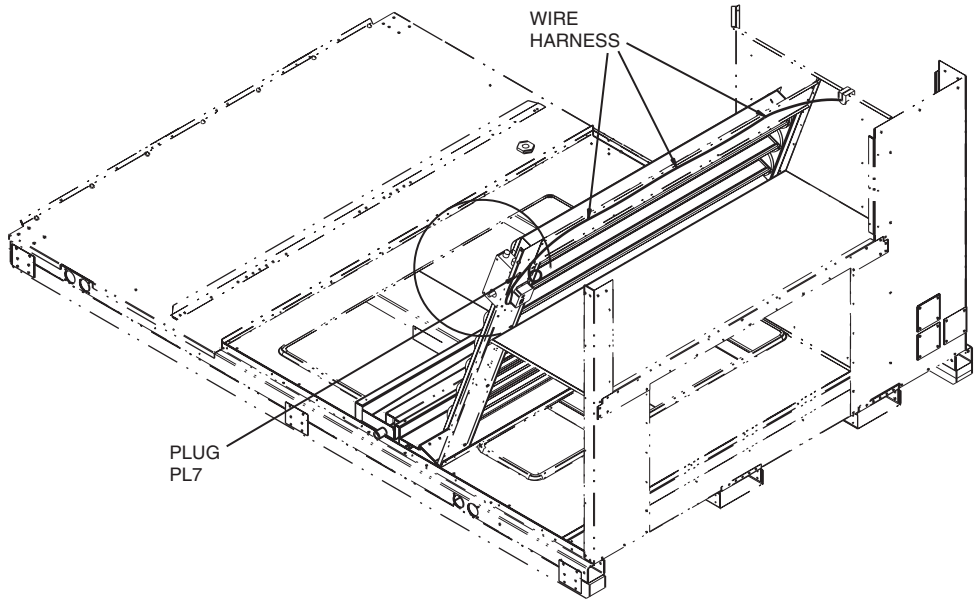

Fig. 9 — Wire Harness Routing

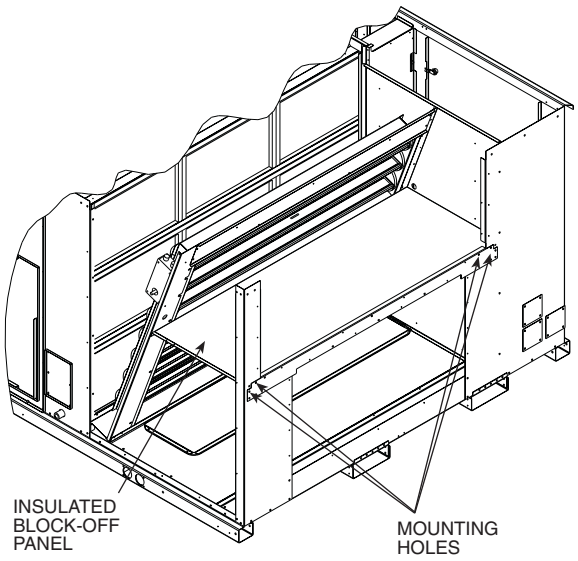

Fig. 10 — Economizer Block-Off Panel Location

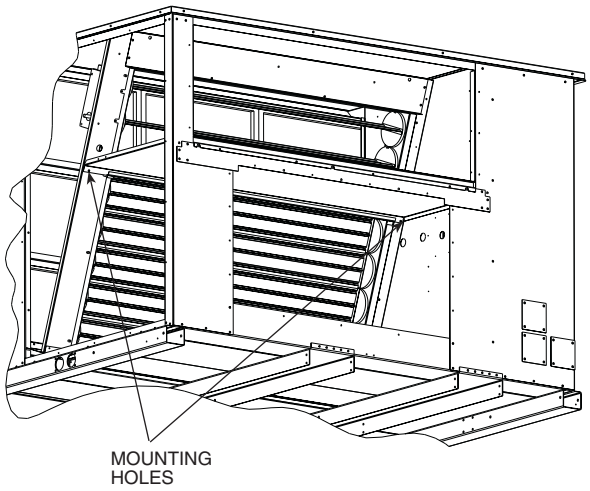

Fig. 11 — Secure Block-Off Panel to Frame

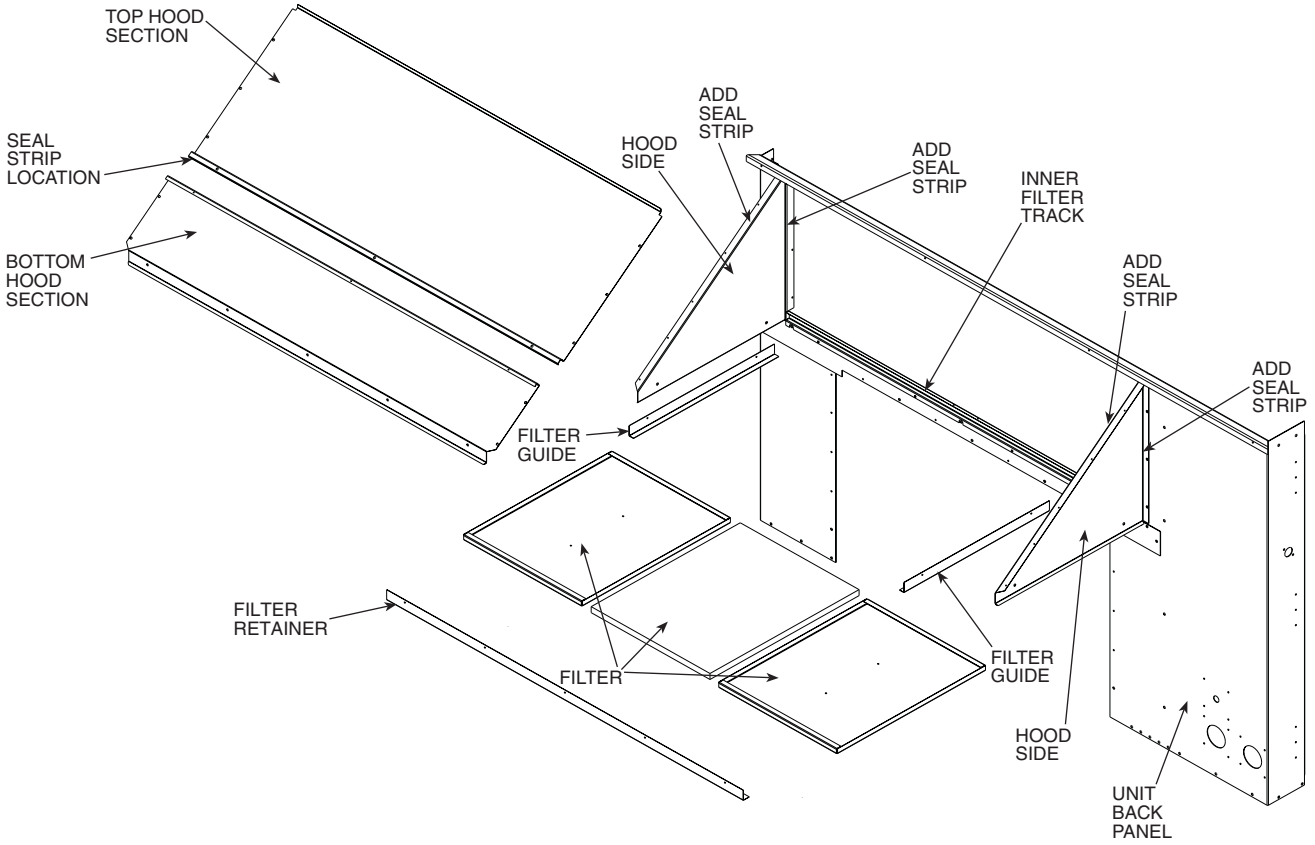

Fig. 12 — Outdoor Air Hood Details

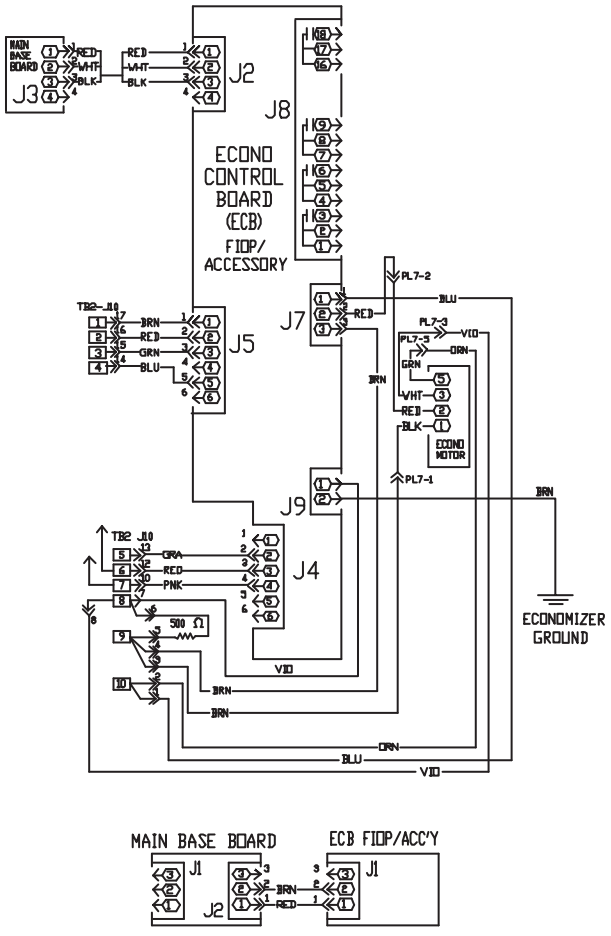

Fig. 13 — Economizer Wiring

CONFIGURATION

The *Comfort*Link™ control must be configured for economizer operation. The default values are for no economizer and no IAQ accessories installed. These configurations are changed through the Scrolling Marquee display or a Carrier network device. The configuration parameters and factory default values for economizer configuration and indoor air quality configuration are shown in Tables 1-4.

NOTE: Consult the Controls, Start-Up, Operation, Service and Troubleshooting Instructions for in-depth instructions on using and configuring the *Comfort*Link control. The following instructions are for the Scrolling Marquee display or Navigator™ accessory.

1. The *Comfort*Link control must be configured to use the economizer accessory. A password may be required to edit the configurations depending on previous settings configured in the unit. Default password is "1111".
2. To configure the *Comfort*Link control, use the arrow keys to scroll the red LED on the display to the "***Configuration***" position and press ENTER.
3. Use the arrow keys to scroll down until the display shows "***ECON***". This is the Economizer Configuration sub mode. Press ENTER.
4. The control will display the Economizer Installed (***EC.EN***) setting. Press ENTER once to select the ***EC.EN*** setting for configuration. Press ENTER again for "NO" to begin flashing.
5. Use the arrow keys to change the configuration from "NO" to "YES", then press ENTER and ESCAPE to save the setting.
6. If additional economizer control accessories have been added or other configuration parameters are to be changed from the factory defaults, then repeat the following steps:
   a. Use the arrow keys to scroll up or down to the parameter to change. Press ENTER once to select the setting for configuration.
   b. Press ENTER again. The configuration value will flash.
   c. Use the arrow keys to change the configuration value.
   d. Press ENTER and ESCAPE to save the setting.
7. Configuration of the *Comfort*Link control is now complete. Pressing ESCAPE multiple times will return the display to the auto-scrolling setting.
8. Close and secure all access doors.

NOTE: The economizer static pressure drop must be accounted for after installation. See Table 5. Refer to the Controls and Troubleshooting literature for information on adjusting the fans.

Table 1 — Economizer Configuration Table (48/50PG Units)

ITEM	EXPANSION	RANGE	UNITS	CCN TABLE/ SUB-TABLE	CCN POINT	DEFAULT
ECON	Economizer Configuration			ECON_CFG		
→EC.EN	Economizer Installed	Yes/No			ECONO	No: no FIOP Yes: FIOP
→E.CTL	Economizer Control Type	1=Digital, Position Feedback 2=Digital, Command Feedback 3=Analog Control			ECON_CTL	1
→EC.MN	Econo Minimum Position	0 to 100	%		ECONOMIN	30
→EC MX	Econo Maximum Position	0 to 100	%		ECONOMAX	100
→H.4M	RH Sensor Value at 4mA	0 to 50	%		RH_4MA	0
→H.20M	RH Sensor Value at 20mA	60 to 100	%		RH_20MA	100
→EH.LO	Econo Hi Temp Limit	40 to 100	dF		OATLECLH	65
→EL.LO	Econo Lo Temp Limit	–30 to 50	dF		OATLECLL	0
→UEFC	Unoccupied Free Cooling	0=Disabled 1=Entire Unoccupied Period 2=PreOccupancy Time			UEFC_CFG	2
→FC.TM	Free Cool PreOcc Time	1 to 9999	min		UEFCTIME	120
→FC.LO	Free Cool Low Temp Limit	0 to 70	dF		OATLUEFC	50
→PE.EN	Power Exhaust Installed	Yes/No			PE_ENABL	No: no FIOP Yes: FIOP
→PE.1	PE Stage1 Econo Position	10 to 100	%		PE1_POS	40
→PE.2	PE Stage2 Econo Position	10 to 100	%		PE2_POS	75
→EN.SW	Enthalpy Switch	0=No Switch 1=Normally Open 2=Normally Closed			ENTHLCFG	0: no FIOP 1: FIOP
→E.TRV	Economizer Travel Time	5 to 300	sec		ECONOTRV	150
→E.MXB	Bottom Stage Max Econo	0 to 100	%		ECONMAXB	50
→E.MXM	Middle Stage Max Econo	1 to 100	%		ECONMAXM	35
→E.MXT	Top Stage Max Econo	0 to 100	%		ECONMAXT	0
→E.DBD	Economizer PID Deadband	0 to 25	%		ECONBAND	3
→EC.P	Economizer PID — kP	0.0 to 99.9	sec		ECONO_P	2.5
→EC.I	Economizer PID — kI	0.0 to 99.9	sec		ECONO_I	0.1
→EC.D	Economizer PID — kD	0.0 to 99.9	sec		ECONO_D	1
→EC.DT	Economizer PID — rate	10.0 to 180.0	sec		ECONO_DT	15

LEGEND

FIOP — Factory-Installed Option

Table 2 — Air Quality Configuration Table (48/50PG Units)

ITEM	EXPANSION	RANGE	UNITS	CCN TABLE/ SUB-TABLE	CCN POINT	DEFAULT
AIR.Q	Air Quality Configuration			IAQ_CFG		
→IA.CF	IAQ Analog Input Config	0=No IAQ 1=Demand Ventilation 2=Econ Position Override 3=Econ Min Position Control			IAQANCFG	0: no FIOP 1: FIOP
→IA.FN	IAQ Analog Fan Config	0=Never 1=Only While Occupied 2=Always			IAQANFAN	0
→II.CF	IAQ Switch Input Config	0=No IAQ 1=DCV Normally Open 2=DCV Normally Closed 3=Override Normally Open 4=Override Normally Closed			IAQINCFG	0
→II.FN	IAQ Switch Fan Config	0=Never 1=Only While Occupied 2=Always			IAQINFAN	0
→AQ.MN	Econo Min IAQ Position	0 to 100			IAQMINP	10
→EC.MN	Econo Minimum Position	0 to 100			ECONOMIN	30
→OVR.P	IAQ Override Position	0 to 100			IAQOVPOS	100
→OA.CF	OAQ Analog Input Cfg	0=No OAQ 1=Demand Ventilation 2=Outdoor Air Lockout			OAQANCFG	0
→OAQ.L	OAQ Lockout Limit	0 to 5000			OAQLOCK	600
→AQD.L	AQ Differential Low	0 to 5000			DAQ_LOW	100
→AQD.H	AQ Differential High	0 to 5000			DAQ_HIGH	700
→DF.ON	Fan On AQ Differential	0 to 5000			DAQFNON	600
→DF.OF	Fan Off AQ Differential	0 to 5000			DAQFNOFF	200
→I.4M	IAQ Sensor Value at 4mA	0 to 5000			IAQ_4MA	0
→I.20M	IAQ Sensor Value at 20mA	0 to 5000			IAQ_20MA	2000
→O.4M	OAQ Sensor Value at 4mA	0 to 5000			OAQ_4MA	0
→O.20M	OAQ Sensor Value at 20mA	0 to 5000			OAQ_20MA	2000

LEGEND

FIOP — Factory-Installed Option

Table 3 — Economizer Configuration Table (48/50HG Units)

SUBMODE	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
ECON			Economizer Configuration	
	EC.EQ	YES/NO	Economizer Equipped Unit	Default: NO
	E.CTL	X	Economizer Control Type	Default: 3 1 = Digital/Position 2 = Digital/Command 3 = Analog Control
	MIN.P	XXX	Economizer Min Position	Default: 30 %
	ECL.H	XX	Econ High Temp Lockout	Default: 65 F
	ECL.L	XX	Econ Low Temp Lockout	Default: 0° F
	UEFC	X	Unoccupied Free Cooling	Default: 2 0 = Disabled 1 = Unoccupied 2 = Preoccupancy
	FC.TM	XXX	Free Cooling Preoccupancy Time	Default: 120 sec
	FC.LL	XX	Free Cooling Low Temperature Limit	Default: 50 F
	EN.SW	X	Enthalpy Switch Input	Default: 0 0: No Switch 1: Normal Open 2: Normal Close
	PE.EN	ENBL/DSBL	Power Exhaust Control	Default: DSBL (ENBL if equipped with power exhaust)
	PE1.P	XXX	PE Stage1 Econo Position	Default: 40 %
	PE2.P	XXX	PE Stage2 Econo Position	Default: 75 %

Table 4 — Indoor Air Quality Configuration Table (48/50HG Units)

SUBMODE	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
IAQ			IAQ Configuration	
	IA.CF	X	IAQ Input Configuration	Default: 0 if no IAQ sensor installed 1 if IAQ sensor installed 0 = No IAQ 1 = Demand Control Ventilation (DCV) 2 = Override IAQ 3 = Control Minimum Position
	IA.FN	X	Fan Enable for IAQ Input	Default: 0 0 = Never 1 = Occupied 2 = Always
	II.CF	X	IAQ Level (Switch Input)	Default: 0 0 = Not Switch 1 = DCV NO 2 = DCV NC 3 = Override NO 4 = Override NC
	II.FN	X	IAQ Switch Input Fan CFG	Default: 0 0 = Never 1 = Only When Occupied 2 = Always
	AQ.MP	XXX	Minimum IAQ Position	Default: 10 %
	MIN.P	XXX	Economizer Min Position	Default: 30 %
	OVR.P	XXX	Econo Override Position	Default: 100%
	OA.CF	X	OAQ Sensor Operation	Default: 0 0 = No OAQ 1 = DCV OAQ 2 = Lockout OAQ
	OAQ.L	XXXX	OAQ Lockout Valve	Default: 600 ppm
	AQD.L	XXX	AQ Differential Low	Default: 100 ppm
	AQD.H	XXXX	AQ Differential High	Default: 700 ppm
	DF.ON	XXX	Fan On AQ Differential	Default: 600 ppm
	DF.OF	XXX	Fan Off AQ Differential	Default: 200 ppm
	I.4M	XXXX	IAQ Sensor Value at 4MA	Default: 0 ppm
	I.20M	XXXX	IAQ Sensor Value at 20MA	Default: 2000 ppm
	O.4M	XXXX	OAQ Sensor Value at 4MA	Default: 0 ppm
	O.20M	XXXX	OAQ Sensor Value at 20MA	Default: 2000 ppm
	H.4M	XXX	RH Sensor Value at 4 mA	Default: 0% Range: 0-100%
	H.20M	XXX	RH Sensor Value at 20 mA	Default: 100% Range: 0-100%
	RH.SP	XX	Space RH Setpoint	Default: 50% Range: 30-95%
	RH.DB	XX	Space RH SetPnt Deadband	Default: 5% Range: 2-20%

Table 5 — Accessory Economizer Static Pressure (in. wg)* — 48/50HG020-028 and 48/50PG20-28 Units

COMPONENT	CFM								
	4,000	**4,500**	**5,000**	**5,500**	**6,000**	**6,500**	**7,000**	**7,500**	**8,000**
Economizer	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10

COMPONENT	CFM							
	8,500	**9,000**	**9,500**	**10,000**	**10,500**	**11,000**	**11,500**	**12,000**
Economizer	0.11	0.12	0.13	0.15	0.16	0.17	0.19	0.20

*The static pressure must be added to the external static pressure. The sum and the evaporator entering-air cfm should then be used in conjunction with the Fan Performance tables to determine blower rpm and watts.

TROUBLESHOOTING

Refer to the Controls, Start-Up, Operation, Service and Troubleshooting Instructions for more information on the following topics: Service Test, Diagnostic Alarm Codes and Possible Causes, Economizer Troubleshooting, and Economizer Adjustment. See Table 6 for general economizer service analysis.

Table 6 — Economizer Service Analysis

PROBLEM	POSSIBLE CAUSE	REMEDY
Damper Does Not Move.	Indoor Fan is off.	Check proper thermostat connection.
		Unit is not configured for continuous fan operation and the thermostat is not calling for heating or cooling.
		Unit is in Unoccupied mode and there is no call for heating or cooling.
		Blown fuse (FU1, FU2).
		Tripped circuit breaker (CB1, CB2, CB3).
		No power to the unit.
		Unit is off via CCN command.
	Actuator is unplugged at motor or at economizer board.	Check wiring connections.
	Unit is not configured for economizer.	Configure unit for economizer per the instructions.
	Outdoor air temperature is above economizer high temperature lockout.	Adjust the high temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Outdoor air temperature is below economizer low temperature lockout.	Adjust the low temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Communication loss to economizer board.	Check wiring connections.
	Damper is jammed.	Identify the obstruction and safely remove.
Economizer Operation is Limited to Minimum Position.	Minimum position is set incorrectly.	Adjust minimum position setting.
	Outdoor-air temperature is above economizer high temperature lockout.	Adjust the high temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Outdoor-air temperature is below economizer low temperature lockout.	Adjust the low temperature lockout setting if it is incorrect, otherwise, economizer is operating correctly.
	Outdoor-air thermistor is faulty.	Replace outdoor air thermistor.
	Low suction pressure problem with a compressor.	Economizer is operating correctly, identify compressor problem.
Economizer Position is Less than Minimum Position.	IAQ is controlling minimum damper position.	Adjust the IAQ settings if incorrect, otherwise the economizer is operating correctly.
	Unit is in Unoccupied mode.	Adjust unit occupied schedule if incorrect, otherwise, economizer is operating correctly.
Economizer Does Not Return to Minimum Position.	Unit is operating under free cooling.	Economizer is operating correctly.
Outdoor Damper Not Fully Closed at 0% Commanded Position or Not Fully Open at 100%.	Economizer actuator is out of calibration.	Enter Service Test mode and run the Calibrate Economizer (***Service Test→INDP→E.CAL***) procedure.
Damper Does Not Close on Power Loss.	Damper is jammed.	Identify the obstruction and safely remove.

LEGEND

CCN — Carrier Comfort Network
IAQ — Indoor Air Quality

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